



## UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/566,751	02/01/2006	Jungo Miyazaki	03500.103091.	7265
5514	7590	06/10/2009		
FITZPATRICK CELLA HARPER & SCINTO			EXAMINER	
30 ROCKEFELLER PLAZA			ZHU, JOHN X	
NEW YORK, NY 10112			ART UNIT	PAPER NUMBER
			2831	
MAIL DATE		DELIVERY MODE		
06/10/2009		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/566,751	<b>Applicant(s)</b> MIYAZAKI ET AL.
	<b>Examiner</b> JOHN ZHU	<b>Art Unit</b> 2831

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
  - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED. (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 04 May 2009.  
 2a) This action is FINAL.      2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 13 and 15-24 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) 13 and 15-18 is/are allowed.  
 6) Claim(s) 19-24 is/are rejected.  
 7) Claim(s) \_\_\_\_\_ is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on 22 November 2007 is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- 1) Notice of References Cited (PTO-892)  
 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)  
 3) Information Disclosure Statement(s) (PTO/SB/08)  
 Paper No(s)/Mail Date \_\_\_\_\_
- 4) Interview Summary (PTO-413)  
 Paper No(s)/Mail Date \_\_\_\_\_  
 5) Notice of Informal Patent Application  
 6) Other: \_\_\_\_\_

**DETAILED ACTION**

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 5/4/09 has been entered.

***Drawings***

2. The drawings are objected to under 37 CFR 1.83(a) because they fail to show the feeding unit as described in the specification. Any structural detail that is essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or

"New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Specification***

3. The disclosure is objected to because of the following informalities: element 33 of the drawings (Fig. 4) is not described in the specification.

Appropriate correction is required.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 19, 20 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lytton (5,384,715).

With respect to claims 19 and 20, Lytton discloses aspects of the claim including a system and method of evaluation comprising an oscillation unit (Fig. 2, element 204) for emitting an electromagnetic wave to strike the surface of a multilayer object (102-105), a reception unit/step (205) for receiving electromagnetic waves generated by the reflection, a processing unit (206) for counting the number of layers on basis of the reflected signals peaks (Column 3, lines 44-46) by first sampling the reflected wave

pulses at a short time shorter than a pulse width of a temporal waveform (Column 9, lines 40-46, inherent by the Nyquist sampling theorem, sampling rate = 1/(2\*frequency)), wherein the processing unit obtains the temporal waveform by using the output values (Column 9, lines 42-44, 'high resolution representation of the signal').

Lytton does not explicitly disclose the oscillating unit contains a component having a frequency in range from 30 GHz to 100 THz.

However, optimization of ranges by routine experimentation is not patently distinct when the general conditions of a claim are disclosed in the prior art. In re Aller, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955)".

Since the frequency of transmitted signal is based on what the device under test is (i.e. higher frequency for thinner materials, etc.), it would have been obvious to modify Lytton to include frequencies in the desired range for the purpose of penetrating and characterizing different desired materials.

With respect to claim 22, Lytton does not explicitly disclose an object in the multilayer object is within a range of tens of several microns to hundreds of several microns in thickness.

However, as Lytton is directed to determining the number of layers in a material, again, optimization of ranges by routine experimentation is not patently distinct when the general conditions of a claim are disclosed in the prior art. In re Aller, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955)".

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Lytton to include layers as thin as from the range of tens of several microns to hundreds of several microns in thickness for the purpose of penetrating characterizing different desired materials.

6. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lytton (5,384,715) as applied to claim 19 above, and further in view of van der Weide (5,936,237).

With respect to claim 21, Lytton does not explicitly disclose the oscillation unit is comprised of a photoconductive switch, and the temporal waveform is acquired through a terahertz time domain spectroscopy.

However, as the rejection of claim 19 points it, it would have been obvious to apply the frequency as in the desired range for the purpose of penetrating and characterizing different desired materials, and thus be a terahertz time domain spectroscopy system. Furthermore, oscillation units utilizing a photoconductive switch are not uncommon. For example, van der Weide discloses an oscillator that comprises a photoconductive switch (column 6, lines 64-65).

Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Lytton to include the photoconductive switch as taught by van der Weide for the purpose of providing better electrical performance such as faster recovery time.

7. Claims 23 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lytton (5,384,715) as applied to claim 19 above, and further in view of Applicant's Admitted Prior Art (hereinafter AAPA) and Wochnowski et al. (5,086,279).

With respect to claim 23, Lytton does not explicitly disclose a holding unit constructed to hold the multiplayer object, and a paper feeding unit constructed to feed the multilayer object held by the holding unit.

AAPA discloses a holder (Fig 9, 75) for holding the multilayer object.

Wochonowski discloses a feeding system (conveyer 2) for transporting the object to be measured.

Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Lytton to include a holder as taught by AAPA for the purpose of securing an object for measurement, and further obvious to include a transporting unit as taught by Wochnowski for the purpose of transporting any object under test (i.e. paper) for continuous measurement or in process testing/measurement.

With respect to claim 24, although Lytton does not explicitly disclose changing the frequency when the thickness of the object measured is changed. This is an obvious modification because frequency of the transmitted signals is based on what the device under test is (i.e. higher frequency for thinner materials, etc.). It would have been obvious to modify Lytton to include different frequencies for the purpose of penetrating and characterizing different desired materials.

***Response to Arguments***

8. Applicant's arguments filed 5/4/2009 have been fully considered but they are not persuasive.

With respect to claims 19 and 20, applicant argues... "the output values of the reflected electromagnetic wave pulses are being temporally sampled at the time of reception by the reception unit/step." (Applicant's Remarks, pg 16) Applicant fails to address how this is any different than the Nyquist sampling as disclosed by Lytton which is done by the receiver or signal processor after receiving the reflected waves. (Column 9, lines 42-44). Accordingly, the rejection has been maintained.

***Allowable Subject Matter***

9. Claims 13, 15-18 are allowed.
10. The following is a statement of reasons for the indication of allowable subject matter: claims 13 and 17 are allowable over the art of record because the prior art does not teach or render obvious the entire combination including specifically a system and method for counting the number of layers of a multilayer object comprising a second reception unit for receiving an electromagnetic wave generated by transmission of the wave through the object, a second processing unit for counting the layer of the object based on delay time, and wherein the number of layers counted by the units are compared, and if the number of layers counted by the first unit is not equal to the number counted by the second unit, an average of the number of layers counted by both the first and second unit is computed.

Claims 15, 16 and 18 are allowable as they depend from claim 13.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JOHN ZHU whose telephone number is (571)272-5920. The examiner can normally be reached on M-F, 8-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diego Gutierrez can be reached on (571) 272-2245. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Diego Gutierrez/  
Supervisory Patent Examiner, Art Unit 2831

John Zhu  
Examiner  
Art Unit 2831

/John Zhu/  
Examiner, Art Unit 2831

Application/Control Number: 10/566,751  
Art Unit: 2831

Page 9